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Supersedes 41-856A, dated June 1957

⊗ Denotes Change Since Previous Issue

DC to AC Inverter

APPLICATION

The d-c to a-c inverter is an intermediate auxiliary device used to convert battery power into 115 volt, 60 cycle, power. Its principal application is as a source of 60 cycle power for a-c synchronous motors of timing devices. Its output voltage closely approaches a sine wave form, which is required for certain small synchronous motors. Its capacity is limited by the design restrictions found necessary in securing such a wave form, however, and it will not supply more than one or two motors. The inverter is not intended for continuous duty, and the d-c input should be disconnected except at the times when the motor is required to operate.

For applications where the d-c voltage is 250 volts, S#937838 Resistor (1825 ohms total, tap at 350 ohms) is used as a potentiometer to supply 125 volts to the inverter. The inverter is connected across the high resistance section as shown in the diagram.

INSTALLATION

The inverter is arranged for rear of panel mounting using either the strap-mounting provided or by removing the strap and using screws through the panel and into the base inserts.

Mount the inverter so the face of the terminal board is vertical with the name plate on top. Mounting in any other position may cause erratic operation.

The resistor across the a-c output terminals, as shown in the accompanying diagram, maintains the output voltage within permissible variations from no load to a maximum of 3 V.A. In the event

greater output is desired the resistor should be removed. In no case, however, should the load on the inverter exceed 8 V.A. When the load exceeds the maximum permissible amount, the wave form becomes distorted and the contacts spark and burn.

The frequency of the output voltage will vary slightly with the loading, but from no load to maximum load the frequency should not be more than two cycles above or one cycle below 60 cycles.

The inverter will start at a voltage which is 70% or less of the nameplate d-c voltage rating.

MAINTENANCE

The only moving parts in the inverter are the vibrator contacts. These contacts are made of a special silver alloy, and, for infrequent operation, such as is normally required of the inverter, they should not need cleaning or adjustment. A contact life of several hundred hours may be expected, and the inverter should be used only for applications where the total of the operating periods will not exceed this life in a reasonable length of service. The adjustment of the contact gaps and springs affects the wave form, and to some extent the frequency, of the output; and the original adjustment should not be disturbed.

If for any reason it appears that the contacts should be dressed, contact burnisher S#182A836H01 should be used. The use of abrasive material for cleaning contacts is not recommended, because of the danger of embedding small particles in the face of the silver contact.

All possible contingencies which may arise during installation, operation or maintenance, and all details and variations of this equipment do not purport to be covered by these instructions. If further information is desired by purchaser regarding this particular installation, operation of maintenance of this equipment, the local ABB representative should be contacted.

When checking the operation of the inverter a high-resistance voltmeter (1000-ohms/volt or higher) should be used to measure the output voltage. If the voltage of the DC supply is appreciably higher than the 125 volt rating of the inverter, a series resistor should not be used to reduce the voltage on the input terminals. This would produce a rapidly fluctuating voltage at the terminals, because of the intermittent current taken, and the output would differ considerably from the output obtained with a constant DC voltage on the input terminals. If the DC source is higher than the inverter rating, a low resistance potentiometer should be used so that the fluctuation of the input voltage will be kept to a low value. The input voltage fluctuations can be reduced further by connecting a large capacitor across the input terminals.

ENERGY REQUIREMENTS

D-C Voltage	Burden on A-C Side	Drain From Battery
125	7.5 V.A.	25 Watts
250	7.5 V.A.	80 Watts*

*Includes external potentiometer resistor

RENEWAL PARTS

Repair work can be done most satisfactorily at the factory. However, interchangeable parts can be furnished to the customers who are equipped for doing repair work. When ordering parts, always give the complete nameplate data.

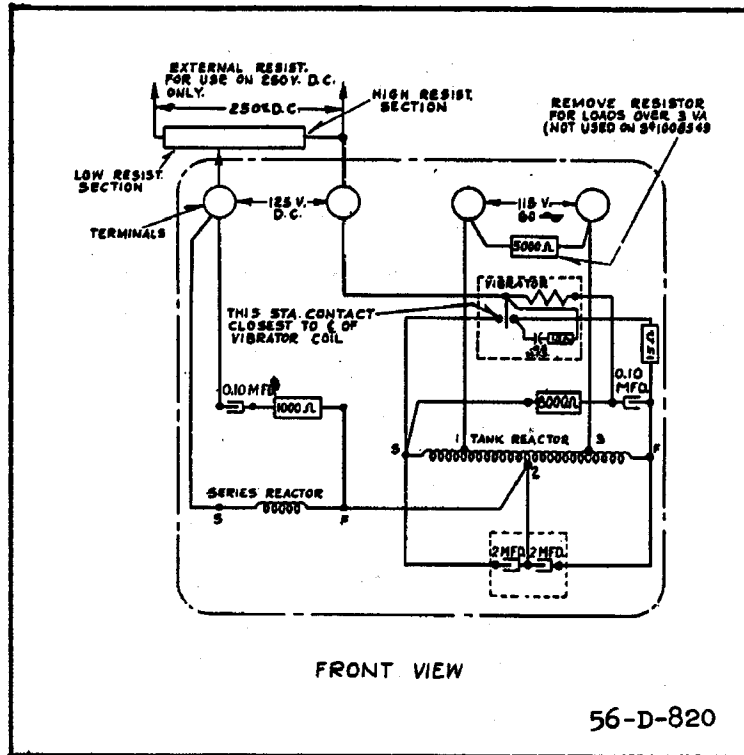


Fig. 1. Internal Connection of the D-C. to A-C. Inverter.

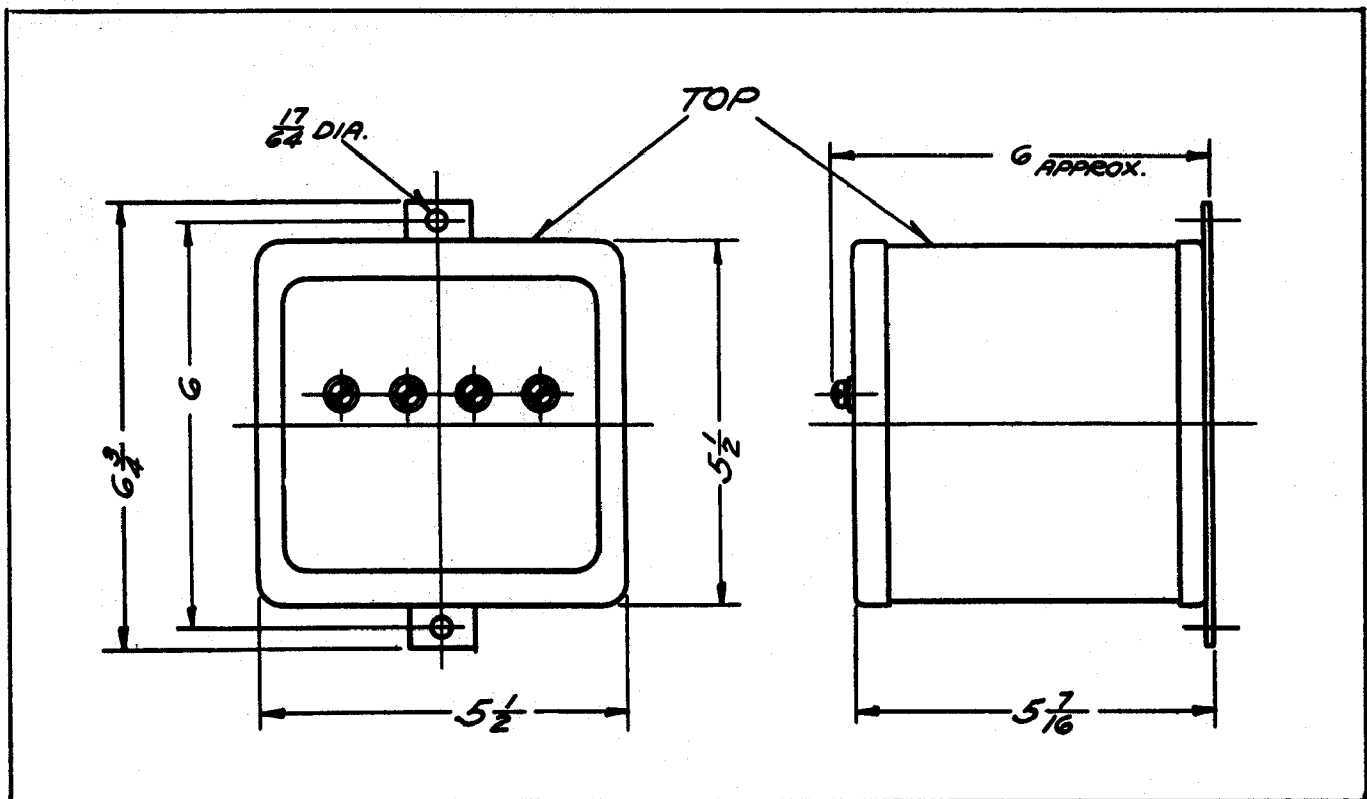


Fig. 2 - Outline and Drilling Plan of the D-C. to A-C. Inverter.



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